

PCTWORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : A61K 7/48	A1	(11) International Publication Number: WO 99/09952 (43) International Publication Date: 4 March 1999 (04.03.99)
(21) International Application Number: PCT/US98/16855 (22) International Filing Date: 13 August 1998 (13.08.98) (30) Priority Data: 08/916,897 22 August 1997 (22.08.97) US (71) Applicant: COLGATE-PALMOLIVE COMPANY [US/US]; 300 Park Avenue, New York, NY 10022 (US). (72) Inventors: RIESGRAF, Diane; 11 Steeple Drive, Belle Mead, NJ 08502 (US). SU, Dean, T.; 12 Arnold Drive, Princeton Junction, NJ 08550 (US). (74) Agent: BARANCIK, Martin, B.; Colgate-Palmolive Company, 909 River Road, Piscataway, NJ 08855-1343 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
(54) Title: TALC CONTAINING AQUEOUS GEL COMPOSITION		
(57) Abstract A composition comprising a) about 40 to about 85 wt.% of water, b) about 12 to about 50 wt.% of talc, c) an acrylate/C ₁₀ /C ₃₀ alkyl acrylate cross polymer, emulsifier and thickening agent in quantities effective to emulsify composition and provide increased viscosity to the aqueous composition, and d) a polyacrylamide in composition thickening and stabilizing quantities.		

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

WO 99/09952

PCT/US98/16855

TALC CONTAINING AQUEOUS GEL COMPOSITION

BACKGROUND OF THE INVENTION

Talc containing compositions have been utilized on people's skins, particularly young baby's skin for many decades. It is generally applied in powder form and is spread with an applicator or the palm of one's hand to an adult or a baby's body. It is dusty and can be wasteful. For some years now, there have been attempts to place talcs into liquid compositions. These compositions are spreadable, preferably flow, and should be stable i.e. have no visible precipitate of the talc, have no discoloration over time and be capable of being evenly dispensed on a baby's skin when the liquid formulation is applied onto the skin. The stability of the system should not be temperature sensitive within reasonable ranges. There should be no separation at high temperatures in order to be a quality product fit for the skin of a child, preferably a baby's, skin.

A new composition has been designed which brings about a stable, easily applicable, composition suitable for a baby's skin. As opposed to the usual oil in water compositions, this is primarily talc and water together with specific gelling material(s) and a consistency enhancer. Additionally, emollients can be present which add to the pleasant skin feel of the applied talc composition.

SUMMARY OF THE INVENTION

In accordance with the invention there is a composition comprising a) about 40 to about 85 wt. % of water, b) about 12 to about 50 wt. % of talc, c) an acrylate/C₁₀-C₃₀ alkyl acrylate cross polymer emulsifier and thickening agent in quantities effective to emulsify the composition and provide increased viscosity to the aqueous composition, and d) a polyacrylamide in composition thickening and stabilizing quantities.

Additionally, various skin feel materials may be added so as to increase the pleasantness to the a person's skin, particularly a baby's skin. Emollients can be employed to achieve this effect without disturbing the basic stability of the liquid talc emulsified and thickened composition.

WO 99/09952

PCT/US98/16855

DETAILED DESCRIPTION OF THE INVENTION

A significant quantity of the composition is water. The water may vary from approximately 40 to about 85 wt. % of the composition preferably from about 50 to about 75 wt. % water. A purified water is preferably employed such as deionized or irradiated.

5 The other significant portion of the composition is talc. The talc may be any type of talc normally employed such as a Chinese, Italian or Australian talc. Talc is generally a silicate containing composition of relatively small particle size which can provide a slippery feeling to a person's skin. Usually it is applied as a dry powder. Because of the two emulsification gellation type components in the composition, the talc can be suspended in
10 water in an emulsified type composition wherein the composition maintains its stability but the talc is precipitated upon the person's skin when the "liquid talc" composition is applied. The talc is present in the final composition in quantities ranging from about 12 to about 50 wt. %, preferably about 15 to about 40 wt. % of the composition, more preferably about 18 to about 30 wt. % of the composition.

15 The basic emulsification and thickening i.e. gellation agent employed is an acrylate/C₁₀-C₃₀ alkyl acrylate cross polymer. This is a copolymer of C₁₀-C₃₀ alkyl acrylates and one or more monomers of acrylic acid. Methylacrylic acid or one or more lower esters of these acids such as methyl, ethyl, propyl or isopropyl can be employed. The polymer is cross-linked with an allyl ether of sucrose or an allyl ether of pentaerythritol. Generally
20 because of the acidic nature of the polymer, it is neutralized with a small amount of weak base such as an amine compound, for example triethanolamine. The polymers of this type are commercially available from Goodrich as Carbopol 1342 and Pemulen-TR1, also available from Goodrich. The quantity of this polymer which can be used in the composition to bring about emulsification, i.e. the suspension of the solid talc in water as well as
25 thickening of the suspension is relatively small. Generally, from about 0.1 to about 0.6 wt. % of the unneutralized cross polymer can be employed. Preferably the quantity of the cross polymer is from about 0.2 to about 0.4 wt. % of the composition. The neutralizing agent is sufficient to bring about a pH of the polymer in water of about 6.5 to about 7.5 essentially a pH of about 7 of the polymer.

30 Also present in the composition is a polyacrylamide. This material functions as a thickening and stabilizing material for the overall composition. The quantity of the

WO 99/09952

PCT/US98/16855

polyacrylamide is generally from about 0.3 to about 1.0 wt. % of the composition. Various polyacrylamides are commercially available such as Reten 420 from Hercules and materials which contain polyacrylamides such as Akypomine P 191 available from Chem-Y and Sepigel 305 from Seppic. The latter two compositions are sold as mixtures with other materials so as to bring about ease of handling and a quickly appearing gel when brought into contact with water. For example, the Sepigel 305 also contains small quantities of a C₁₀ to C₁₆, average C₁₂ to C₁₄ isoparaffin and a small quantity of an ethoxylated alcohol, specifically laureth-7. When using such a mixture as Sepigel 305 the amount of the total material is from about 0.1 to about 5.0 wt. % of the composition; preferably about 1 to about 3 wt. %. The amount of the isoparaffin is approximately equal to the polyacrylamide but can be up to about 25 wt. % more or less than the polyacrylamide. The ethoxylated alcohol is substantially less than the polyacrylamide, approximately 10 to 30 wt. % of the polyacrylamide. The polyacrylamide is preferably about 30 to about 40 wt. % of the Sepigel 305. The remainder of the Sepigel 305 is substantially water.

The viscosity of the final composition can vary from about 800 to more than 50,000 centipoise as measured on a Brookfield viscometer at a temperature of 25° C. At the lower viscosities a spindle # 5 at 20 rpm is used. At the upper end a "bar" at ___ rpm is used. The viscosity is preferably from about 1,000 to about 12,000 centipoise using a number 5 spindle at 20 rpm. Interestingly, the quantity of talc present in the composition can go up to as high as about 50 wt. % or more and still maintain the characteristics of spreadability, stability and the like while providing a creamy consistency to the composition. Still further, the viscosity of a 35 wt. % talc composition is very similar to that of a 25 wt. % talc composition and remains lotion like in consistency. The pH of the overall composition can vary from about 5.0 to about 7.5 but is preferably from about 6.0 to about 7.0. Such viscosity and pH will bring about a "liquid talc" composition which spreads, preferably flows and has great stability at 49°C, that is no visible precipitate of talc over a period of about 4 weeks. In this time period no visible discoloration should be present in the composition. Further, the talc is capable of even dispersion on a person's skin as opposed to a clumping of talc or areas of non-dispersion when the liquid formulation is applied to the skin. The composition should not only be stable at room temperature but at temperatures significantly above room

WO 99/09952

PCT/US98/16855

temperature. For example, stability, i.e. no visible precipitation or discoloration should be observed at temperatures of 49°C over a period of about 4 weeks.

As stated previously in order to enhance skin feel, various emollients can be added to the composition. Examples of such emollients are essentially almost infinite. However, such emollient families include the following: silicone oils and gums and modifications thereof such as linear cyclopolydimethylsiloxocanes; amino, alkyl, alkylaryl and aryl silicone oils; fats and oils including natural fats and oils such as jojoba, soybean, rice bran and the like; waxes such as lanolin and beeswax; hydrocarbons such as liquid paraffins, petrolatums, mineral oil and the like; free-fatty acids such as lauric myristic, palmitic, and stearic; higher alcohols ethoxylated or not such as lauryl, myristyl, stearyl, behenyl, and the like; esters such as long-chain esters of long-chain acids, long-chain esters of short-chain acids, and short-chain esters of long-chain acids. Examples of the last materials include acetyl octanoate, butyl stearate, glycerol monostearate other esters such as long-chain esters of phosphoric acid, ethoxylated or non-ethoxylated, and the like. When these emollients are present in their emollient skin feel enhancing quantities, for example 0.1 to about 5.0 wt. %, preferably about 0.2 to about 1.5% the basic characteristics of the composition previously commented upon should not be fundamentally changed. However, it should be noted that some of these emollients because of their hydrophobic nature may actually assist as emulsifiers for the system.

The compositions of the invention may be readily prepared by processes known in the art. For example, the water, cross polymer, polymeric neutralizer, talc, and any pH adjuster such as a small quantity of citric acid can be brought together and mixed in a vessel. In a separate vessel the polyacrylamide and any emollients, such as those mentioned above, can be mixed. These two vessel contents can then be combined with further mixing. To this admixture can be added various standard additional agents, such as, for example, a fragrance and a preservative system.

Below are examples of the invention. These examples are meant to be illustrative of the invention and not unduly limit the basic inventive concept.

WO 99/09952

PCT/US98/16855

EXAMPLES**Example 1**

Component	Quantity wt. %
Deionized Water	75.780
Pemulen TR-1	0.300
Triethanolamine	0.200
Talc	20.000
Isostearath-2 Phosphate	1.000
Octyl Palmitate	0.350
Sepigel 305	2.000
Fragrance	0.300
Preservative	0.070

5 The octylpalmitate is an emollient. The isostearath-2 phosphate provides additional skin feel.

 This composition brings about a liquid talc which is flowable, stable at a temperature of 49°C for a period of 4 weeks and shows no visible discoloration or precipitation in that time period. The pH of the formulation is 5.1 at 25°C and has a viscosity of 28,600
10 centipoise using a Brookfield RVT viscometer at 25°C with spindle # 6 and 10 rpm. When applied to a person's skin the talc is evenly dispersed and provides excellent feel to the skin.

Example 2

 The same formulations as in Example 1 is employed except 0.25 ml of
15 triethanolamine is utilized to neutralize the polyacrylate polymer. The water is reduced by the increased amount of triethanolamine. Essentially the same results as in Example 1 are achieved. The pH of the formulation is 6.2.

WO 99/09952

PCT/US98/16855

Example 3

The same formulation as in Example 2 is employed except that Sepigel 305 is decreased 0.5 wt. % to 1.5 wt. % of the composition and the quantity of water is increased. Essentially the same results as in Example 2 are achieved.

5

Example 4

The same formulation as in Example 2 is employed except that the Sepigel 305 is reduced to 1.0 wt. % and the water is increased. Essentially the same results as in Example 2 are achieved.

10

Example 5

The same formulation as in Example 1 is employed except that Pemulen TR-1 is reduced to 0.2 wt. % and the Sepigel 305 is decreased to 1.0 wt. % and the water is increased. Essentially the same results as in Example 1 are obtained.

15

Example 6

The same formulation as in Example 5 is employed except that Pemulen TR-I is reduced to 0.15 wt. %. The pH of the composition is 6.4 and the viscosity is 11220 centipoise. Using a RVT spindle #5 at 20 rpm. After being held at 49°C for 4 weeks there is no visible separation or discoloration.

20

Example 7

The same formulation as in Example 6 is employed except that the talc is increased to 35 wt. % and the water reduced appropriately. The formulation is spreadable, has a pH of 6.3 and viscosity of 12,280 centipoise at 25°C, using a RVT spindle #5 at 20 rpm. After being held at 49°C for 4 weeks there is no visible separation or discoloration.

25

Example 8

The same formulation as in Example 7 is employed except that the talc is increased to 50 wt. % and the water is reduced appropriately. The formulation is spreadable, has a pH of

30

WO 99/09952

PCT/US98/16855

6.3 and a viscosity of 30,700 centipoise at 28°C using a RVT spindle #6 at 10 rpm. After being held at 49°C for 4 weeks, there is no visible separation or discoloration.

WO 99/09952

PCT/US98/16855

What is claimed is:

1. A composition comprising
 - a) about 40 to about 85 wt. % of water,
 - 5 b) about 12 to about 50 wt. % of talc
 - c) an acrylate/C₁₀/C₃₀ alkyl acrylate cross polymer, emulsifier and thickening agent in quantities effective to emulsify composition and provide increased viscosity to the aqueous composition, and
 - d) a polyacrylamide in composition thickening and stabilizing quantities.
- 10 2. The claim in accordance with claim 1 wherein the talc is from about 15 to about 35 wt. % of the composition.
3. The claim in accordance with claim 1 wherein the cross polymer is from about 0.1 to
15 about 0.6 wt. % of the composition.
4. The claim in accordance with claim 1 wherein the polyacrylamide is from about 0.3 to about 1.0 wt. % of the composition.
- 20 5. The claim in accordance with claim 1 wherein the cross polymer is essentially neutralized.
6. The claim in accordance with claim 4 wherein also present in the composition is an
25 isoparaffin having from about 10 to about 14 carbon atoms inclusive, and an ethoxylated primary alcohol having from about 10 to about 18 carbon atoms, inclusive.
7. A composition prepared by mixing
 - a) about 40 to about 85 wt. % of water,
 - 30 b) about 12 to about 50 wt. % of talc,
 - c) an acrylate/C₁₀/C₃₀ alkyl acrylate cross polymer, emulsifier and thickening

WO 99/09952

PCT/US98/16855

agent in quantities effective to emulsify composition and provide increased viscosity to the aqueous composition, and

d) a polyacrylamide in composition thickening and stabilizing quantities.

5

10

INTERNATIONAL SEARCH REPORT

Int'l. Application No.

PCT/US 98/16855

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 A61K7/48

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 661 047 A (CUSI LAB) 5 July 1995 see examples	1
A	US 4 800 076 A (BHAT GULGUNJI R ET AL) 24 January 1989 see example 8	1
A	FR 2 679 769 A (POLA CHEM IND INC) 5 February 1993 see the whole document	1
A	EP 0 679 382 A (AJINOMOTO KK ;ASAHI GLASS CO LTD (JP)) 2 November 1995 see the whole document	1



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"Z" document member of the same patent family

Date of the actual completion of the international search

26 January 1999

Date of mailing of the international search report

03/02/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 apo nl
Fax (+31-70) 340-3016

Authorized officer

Couckuyt, P

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 98/16855

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0661047 A	05-07-1995	ES 2074402 A AT 162713 T DE 69408294 D GR 3026709 T	01-09-1995 15-02-1998 05-03-1998 31-07-1998
US 4800076 A	24-01-1989	AU 611131 B AU 1305588 A CA 1306953 A GR 88100152 A, B IE 61761 B JP 63243015 A KR 9616196 B NO 178094 B PT 86946 B SE 503137 C SE 8800786 A	06-06-1991 15-09-1988 01-09-1992 31-01-1989 30-11-1994 07-10-1988 06-12-1996 16-10-1995 29-05-1992 01-04-1996 14-09-1988
FR 2679769 A	05-02-1993	JP 5025021 A JP 5058840 A US 5238678 A	02-02-1993 09-03-1993 24-08-1993
EP 0679382 A	02-11-1995	JP 7252125 A US 5582818 A	03-10-1995 10-12-1996

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.